

Appl. No. 09/833,016  
Filed with 37 CFR 1.604(a)(1) Request

IN THE SPECIFICATION

On page 21, please insert the following new paragraph after line 3:

D  
1  
According to a disclosed class of innovative embodiments, there is provided: A roller cone drill bit comprising: a plurality of arms; rotatable cutting structures mounted on respective ones of the arms; and a plurality of teeth located on each of the cutting structures; wherein approximately the same axial force is acting on each of the cutting structures; and wherein the axial force on each of the cutting structures is between thirty-one (31) percent and thirty-five (35) percent of the total of the axial force on the bit. ok

On page 21, please insert the following new paragraph after line 9:

D  
2  
According to another disclosed class of innovative embodiments, there is provided: A roller cone drill bit comprising: a plurality of arms; rotatable cutting structures mounted on respective ones of the arms; and a plurality of teeth located on each of the cutting structures; wherein a substantially equal volume of formation is drilled by each of the cutting structures; and wherein the volume of formation drilled by each of the cutting structures is between thirty-one (31) percent and thirty-five (35) percent of the total volume drilled by the drill bit. ok

On page 22, please insert the following new paragraph after line 10:

D  
3  
According to another disclosed class of innovative embodiments, there is provided: A method of designing a roller cone drill bit, the steps of comprising: (a) calculating the axial force acting on each tooth on each cutting structure; (b) calculating the axial force acting on each cutting structure per revolution of the drill bit; (c) comparing the axial force acting on each of the cutting structures with the axial force on the other ones of the cutting structures of the bit; (d) adjusting at least one geometric parameter on the design of at least one cutting structure; (e) repeating steps (a) through (d) until approximately the same axial force is acting on each cutting structure; and further comprising the steps of: calculating the volume of formation displaced by the depth of penetration of each tooth; calculating the volume of ok

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formation displaced by the tangential scrapping movement of each tooth; calculating the  
volume of formation displaced by the radial scrapping movement of each tooth; and,  
calculating the volume of formation displaced by a crater enlargement parameter function.

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